

What is claimed is:

1. A receiving apparatus for receiving information light, comprising:

5 a light receiving element array comprised of a plurality of light receiving elements for outputting electric signals at levels in accordance with amounts of light received arranged in an array, wherein the light receiving elements output the electric signals in parallel and

10 an information extraction circuit for receiving the plurality of electric signals output in parallel from said light receiving element array and extracting information in accordance with said information light based on the plurality of electric signals.

15 2. A receiving apparatus as set forth in claim 1, further comprising an optical system for condensing the information light to a predetermined region of a light receiving region of said light receiving element array.

20 3. A receiving apparatus as set forth in claim 2, wherein:

said optical system is capable of adjusting a position of a light axis direction based on a control signal; and

25 said information extraction circuit outputs said control signal for adjusting a position in the light

axis direction to said optical system when information in accordance with said information light cannot be extracted based on the plurality of electric signals.

5 4. A receiving apparatus as set forth in claim 1, wherein a wavelength of said information light is a wavelength included in a visible range.

10 5. A receiving apparatus as set forth in claim 1, wherein said information light includes a plurality of information corresponding to bits of a plurality of bits of parallel data and is dispersed in a spatially predetermined range.

15 6. A receiving apparatus as set forth in claim 2, wherein said information light includes a plurality of information corresponding to bits of parallel data of a plurality of bits and is dispersed in a spatially predetermined range.

20 7. A receiving apparatus as set forth in claim 3, wherein said information light includes a plurality of information corresponding to bits of parallel data of a plurality of bits and is dispersed in a spatially predetermined range.

25 8. A receiving apparatus as set forth in claim 4, wherein said information light includes a plurality of information corresponding to bits of parallel data of a plurality of bits and is dispersed in a spatially

predetermined range.

9. A receiving apparatus as set forth in claim 5, wherein said information extraction circuit comprises

5 a binarizing circuit for binarizing the plurality of electric signals from said light receiving element array;

10 a data selection circuit for selecting data corresponding to said information light from the plurality of binarized data from said binarizing circuit; and

a conversion circuit for decoding data corresponding to the information light selected by the data selection circuit and converting it from parallel data to serial data.

15 10. A receiving apparatus as set forth in claim 6, wherein said information extraction circuit comprises

a binarizing circuit for binarizing the plurality of electric signals from said light receiving element array;

20 a data selection circuit for selecting data corresponding to said information light from the plurality of binarized data from said binarizing circuit; and

25 a conversion circuit for decoding data corresponding to the information light selected by the

data selection circuit and converting it from parallel data to serial data.

11. A receiving apparatus as set forth in claim 7, wherein said information extraction circuit comprises

5 a binarizing circuit for binarizing the plurality of electric signals from said light receiving element array;

10 a data selection circuit for selecting data corresponding to said information light from the plurality of binarized data from said binarizing circuit; and

15 a conversion circuit for decoding data corresponding to the information light selected by the data selection circuit and converting it from parallel data to serial data.

12. A receiving apparatus as set forth in claim 8, wherein said information extraction circuit comprises

20 a binarizing circuit for binarizing the plurality of electric signals from said light receiving element array;

a data selection circuit for selecting data corresponding to said information light from the plurality of binarized data from said binarizing circuit; and

25 a conversion circuit for decoding data

corresponding to the information light selected by the data selection circuit and converting it from parallel data to serial data.

13. A transmitting apparatus, comprising:

5 a conversion circuit for converting serially input data to a plurality of bits of parallel data respectively giving predetermined information and

10 a light emitting diode array comprising light emitting diode units of at least a number corresponding to the number of bits of parallel data from said conversion circuit arranged in an array, wherein the respective light emitting diode units are controlled in light emission in parallel based on bit information of said corresponding parallel data to emit information light dispersed in a spatially predetermined range.

14. A transmitting apparatus as set forth in claim 13, wherein a wavelength of said information light is a wavelength included in a visible range.

15. A communication system, comprising:

20 a transmitting apparatus for transmitting information light and

25 a receiving apparatus including a light receiving element array comprising a plurality of light receiving elements for outputting electric signals at levels in accordance with amounts of light received

arranged in an array, wherein the respective light receiving elements output electric signals in parallel, and an information extraction circuit for receiving a plurality of electric signals output in parallel from said light receiving element array and extracting information in accordance with said information light based on the plurality of electric signals.

16. A communication system as set forth in claim 15, wherein said receiving apparatus comprises an optical system for condensing the information light to a predetermined region of a light receiving region of said light receiving element array.

17. A communication system as set forth in claim 16, wherein:

said optical system is capable of adjusting a position of a light axis direction based on a control signal; and

said information extraction circuit outputs said control signal for adjusting a position of the light axis direction to said optical system when information in accordance with said information light cannot be extracted based on the plurality of electric signals.

18. A communication system as set forth in claim 15, wherein a wavelength of information light transmitted by said transmitting apparatus is a wavelength included

in a visible range.

19. A communication system as set forth in claim 15, wherein information light transmitted by said transmitting apparatus includes a plurality of information corresponding to bits of a plurality of bits of parallel data and is dispersed in a spatially predetermined range.

20. A communication system as set forth in claim 16, wherein information light transmitted by said transmitting apparatus includes a plurality of information corresponding to bits of a plurality of bits of parallel data and is dispersed in a spatially predetermined range.

21. A communication system as set forth in claim 17, wherein information light transmitted by said transmitting apparatus includes a plurality of information corresponding to bits of a plurality of bits of parallel data and is dispersed in a spatially predetermined range.

22. A communication system as set forth in claim 18, wherein information light transmitted by said transmitting apparatus includes a plurality of information corresponding to bits of a plurality of bits of parallel data and is dispersed in a spatially predetermined range.

23. A communication system as set forth in claim 19, wherein an information extraction circuit of said receiving apparatus comprises

5 a binarizing circuit for binarizing a plurality of electric signals from said light receiving element array;

10 a data selection circuit for selecting data corresponding to said information light from the plurality of binarized data from said binarizing circuit; and

a conversion circuit for decoding data corresponding to information light selected by said data selection circuit and converting it from parallel data to serial data.

15 24. A communication system as set forth in claim 20, wherein an information extraction circuit of said receiving apparatus comprises

20 a binarizing circuit for binarizing a plurality of electric signals from said light receiving element array;

a data selection circuit for selecting data corresponding to said information light from the plurality of binarized data from said binarizing circuit; and

25 a conversion circuit for decoding data

corresponding to information light selected by said data selection circuit and converting it from parallel data to serial data.

25. A communication system as set forth in claim 21, wherein an information extraction circuit of said receiving apparatus comprises

a binarizing circuit for binarizing a plurality of electric signals from said light receiving element array;

a data selection circuit for selecting data corresponding to said information light from the plurality of binarized data from said binarizing circuit; and

a conversion circuit for decoding data corresponding to information light selected by said data selection circuit and converting it from parallel data to serial data.

26. A communication system as set forth in claim 22, wherein an information extraction circuit of said receiving apparatus comprises

a binarizing circuit for binarizing a plurality of electric signals from said light receiving element array;

a data selection circuit for selecting data corresponding to said information light from the

plurality of binarized data from said binarizing circuit;
and

a conversion circuit for decoding data
corresponding to information light selected by said data
5 selection circuit and converting it from parallel data to
serial data.

27. A communication system, comprising:

a transmitting apparatus comprising a
conversion circuit for converting serially input data to
a plurality of bits of parallel data respectively giving
10 predetermined information and a light emitting diode
array comprising light emitting diode units of at least a
number corresponding to the bits of parallel data from
said conversion circuit arranged in an array, wherein the
respective light emitting diode units are controlled in
15 light emission in parallel based on bit information of
said corresponding parallel data to emit information
light dispersed in a spatially predetermined range; and

a receiving apparatus including a light
20 receiving element array comprised of a plurality of light
receiving elements for outputting electric signals at
levels in accordance with amounts of light received
arranged in an array, wherein the respective light
receiving elements output electric signals in parallel,
25 and an information extraction circuit for receiving a

plurality of electric signals output in parallel from said light receiving element array and extracting information in accordance with said information light based on the plurality of electric signals.

5 28. A communication system as set forth in claim 27, wherein said receiving apparatus comprises an optical system for condensing information light to a predetermined region of a light receiving region of said light receiving element array.

10 29. A communication system as set forth in claim 28, wherein:

 said optical system is capable of adjusting a position of a light axis direction based on a control signal; and

15 said information extraction circuit outputs said control signal for adjusting a position of the light axis direction to said optical system when information in accordance with said information light cannot be extracted based on the plurality of electric signals.

20 30. A communication system as set forth in claim 27, wherein a wavelength of an information light transmitted by said transmitting apparatus is a wavelength included in a visible range.

25 31. A communication system as set forth in claim 27, wherein an information extraction circuit of said

receiving apparatus comprises

a binarizing circuit for binarizing a plurality of electric signals from said light receiving element array;

5 a data selection circuit for selecting data corresponding to said information light from the plurality of binarized data from said binarizing circuit; and

10 a conversion circuit for decoding data corresponding to information light selected by said data selection circuit and converting it from parallel data to serial data.

15 32. A communication system as set forth in claim 28, wherein an information extraction circuit of said receiving apparatus comprises

a binarizing circuit for binarizing a plurality of electric signals from said light receiving element array;

20 a data selection circuit for selecting data corresponding to said information light from the plurality of binarized data from said binarizing circuit; and

25 a conversion circuit for decoding data corresponding to information light selected by said data selection circuit and converting it from parallel data to

serial data.

33. A communication system as set forth in claim 29, wherein an information extraction circuit of said receiving apparatus comprises

5 a binarizing circuit for binarizing a plurality of electric signals from said light receiving element array;

10 a data selection circuit for selecting data corresponding to said information light from the plurality of binarized data from said binarizing circuit; and

15 a conversion circuit for decoding data corresponding to information light selected by said data selection circuit and converting it from parallel data to serial data.